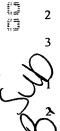## CLAIMS

1. A method for inputting data to a mobile communication device having a constrained keyboard with ambiguous keys, the mobile communication device also having a microphone for picking up voice input, said method comprising:

(a) receiving voice input from a user using the microphone;

(b) detecting whether at least one of the ambiguous keys of the keyboard has been selected as a selected key;

(c) obtaining reference patterns associated with the selected key;

(d) comparing the voice input with the obtained reference patterns to produce comparison data; and

(e) identifying a character that was intended to be input by the user based on the comparison data.

2. A method as recited in claim 1, wherein said identifying (e) is synchronized with the detection of the selected key by said detecting (b).

3. A method as recited in claim 1, wherein the selected key has a plurality of characters associated therewith, and wherein the character identified is one of the plurality of the characters associated with the selected key.

4. A method as recited in claim 3, wherein each one of the obtained reference patterns pertains to one of the plurality of characters associated with the selected key.

5. A method as recited in claim 4, wherein said identifying (e) is synchronized with the detection of the selected key by said detecting (b).

6. A method as recited in claim 1,

wherein said obtaining (c) of the reference patterns operates to select a predetermined set of reference patterns from a plurality of reference patterns, and

wherein the obtained reference patters are speech reference patterns.

1 7.   A method as recited in claim 1, wherein the selected key has a plurality of

2 characters associated therewith, and

3   wherein said identifying (e) of the character that was intended to be input by the

4 user comprises:

5   determining whether one of the obtained reference patterns matches the

6 voice input based on the comparison data; and

7   selecting the character from the plurality of the characters associated with

8 the selected key in accordance with the determined one of the obtained reference

9 patterns.

1 8.   A method as recited in claim 1, wherein the characters comprise letters or

2 numeric characters.

1 9.   A computer readable medium having program code for disambiguating a key

2 selection to a constrained input keyboard of a computing device, the key selection

3 being ambiguous as to which a plurality of characters is to be input, said computer

4 readable medium comprising:

5   program code for detecting whether an ambiguous keys of the keyboard has

6 been selected as a selected key;

7   program code for receiving a voice input corresponding to one of the characters

8 associated with the selected key;

9   program code for determining the one of the characters to that has been input

10 based on the selected key and the voice input.

1 10.   A computer readable medium as recited in claim 9, wherein the computing

2 device is a mobile computing device having the constrained input keyboard integral

3 thereto.

1 11.   A computer readable medium as recited in claim 10, wherein the computing

2 device is a cellular.

1   12.   A computer readable medium as recited in claim 10, wherein said program code

2   for determining comprises:

3   program code for obtaining reference patterns associated with the selected key;

4   program code for comparing the voice input with the obtained reference patterns

5   to produce comparison data; and

6   program code for identifying the one of the characters that has been input based

7   on the comparison data.

1   13.   A computer readable medium as recited in claim 12, wherein said program code

2   for identifying is synchronized with the detection of the selected key by said program

3   code for detecting.

1   14.   A computer readable medium as recited in claim 13, wherein the selected key

2   has a plurality of characters associated therewith, and wherein the character identified

3   is one of the plurality of the characters associated with the selected key.

1   15.   A computer readable medium as recited in claim 14, wherein the computing

2   device is a mobile computing device having the constrained input keyboard integral

3   thereto.

1   16.   A computer readable medium as recited in claim 15, wherein the computing

2   device is a cellular.

1   17.   A key disambiguate system for an ambiguous key input device having a plurality

2   of keys, with each key representing a plurality of different characters, wherein the

3   improvement comprises completely disambiguating a user's key input of a single action

4   on a single one of the keys through use of a user's sound input pertaining to an

5   intended character associated with the single one of the keys.

1   18.   A key disambiguate system as recited in claim 17, wherein the user's sound

2   input is received substantially simultaneously with the user's key input.

19. A key disambiguation system, comprising:

a microphone for picking up an analog voice input;

an analog-to-digital converter coupled to said microphone, said analog-to-digital microphone converts the analog voice input to a digital voice input;

a data reduction unit coupled to said analog-to-digital circuit, said data reduction unit identifies distinguishing characteristics within the digital voice input as processed voice input;

an ambiguous key input device having a plurality of keys, each of the keys representing a plurality of different characters;

a keyboard controller coupled to said ambiguous key input device, said keyboard controller detects a user's selection of one of the keys of said ambiguous key input device and invokes a key selection event;

a reference sound patterns source coupled to said keyboard controller, said reference sound patterns source stores a plurality of reference sounds;

pattern comparison unit coupled to said data reduction unit and said reference sound patterns source, said pattern comparison unit operates to compare the processed voice input with selected ones of the reference sound patterns to produce comparison data; and

a key determination unit coupled to said pattern comparison unit, said key determination unit operates to determine the one of the characters being input based on the comparison data.

20. A key disambiguation system as recited in claim 19, wherein said key determination unit identifies a matching one of the selected reference sound patterns, and determines the one of the characters being input from the matching on of the selected reference sound patterns.

21. A mobile communication device having a constrained keyboard with ambiguous keys, said method comprising:

3   a microphone configured to receive voice input from a user;

4   means for detecting whether at least one of the ambiguous keys of the keyboard
5   has been selected as a selected key;

6   means for obtaining reference patterns associated with the selected key;

7   means for comparing the voice input with the obtained reference patterns to
8   produce comparison data; and

9   means for identifying a character that was intended to be input by the user based
10   on the comparison data.

1   22. A method for inputting data to a mobile communication device having a
2   constrained keyboard with ambiguous keys, the mobile communication device also
3   having a microphone for picking up voice input, said method comprising:

4   (a) receiving user inputs, the user inputs including a voice input from a user
5   using the microphone and a key selection of at least one of the ambiguous keys of the
6   keyboard;

7   (b) obtaining reference patterns associated with the key selection;

8   (c) comparing the voice input with the obtained reference patterns to produce
9   comparison data; and

10   (d) identifying a character that was intended to be input by the user based on the
11   comparison data.

1   23. A method as recited in claim 22, wherein said identifying (d) is synchronized
2   with the detection of the key selection.

1 24. A method as recited in claim 22, wherein the key selection has a plurality of
2 characters associated therewith, and wherein the character identified is one of the
3 plurality of the characters associated with the key selection.

1 25. A method as recited in claim 24, wherein each one of the obtained reference
2 patterns pertains to one of the plurality of characters associated with the key selection.

26. A method as recited in claim 22,

   wherein said obtaining (b) of the reference patterns operates to select a
3 predetermined set of reference patterns from a plurality of reference patterns, and

4   wherein the obtained reference patters are speech reference patterns.

1 27. A method as recited in claim 22, wherein the key selection has a plurality of
2 characters associated therewith, and

3   wherein said identifying (d) of the character that was intended to be input by the
4 user comprises:

5   determining whether one of the obtained reference patterns matches the
6 voice input based on the comparison data; and

7   selecting the character from the plurality of the characters associated with
8 the key selection in accordance with the determined one of the obtained reference
9 patterns.